INCH-POUND MIL-PRF-32379 03 May 2011

PERFORMANCE SPECIFICATION

SHIELD, BALLISTIC - SHIPBOARD CREW-SERVED WEAPON STATION

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

- 1.1 <u>Scope</u>. This specification establishes the functional, performance, and verification requirements for crewserved weapons station ballistic shields and their integration aboard naval vessels.
 - 1.2 <u>Classification</u>. Ballistic shields are of the following types, as specified (see 6.2).
- 1.2.1 <u>Types</u>. The classification types of ballistic shields are based on the methodology of integrating the shield aboard ship. The preferred method of integration is Type I. Only when operational or engineering constraints preclude Type I integration, should Type II or Type III integration methods be utilized.
- a. <u>Type I Permanent</u>. Permanently integrated shields include structures that wholly remain in place during all operations. Collapsible shields that remain attached or partially attached to the ship with a structural component common to both erect and stowed positions, such as a hinge, are considered permanent.
- b. <u>Type II Semi-permanent</u>. Semi-permanently integrated shields include all shields that consist of a permanent structure that is retained at the installation position and a portion that is removed and stored at an alternate location as necessary to preclude impinging upon other shipboard operations.
- c. <u>Type III Removable</u>. Removable shield integrations include all shields that both the ballistic material and the structural support is removed completely from the location and installed or stored at an alternate location as necessary to preclude impinging upon other shipboard operations.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 <u>Specifications, standards, and handbooks</u>. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy.mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.daps.dla.mil.

AMSC N/A FSC 2040

FEDERAL STANDARDS

FED-STD-595/26173 - Gray, Semigloss (Dark Gray)

FED-STD-595/26270 - Gray, Semigloss (Haze Gray)

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-S-901 - Shock Tests, H.I. (High-Impact) Shipboard Machinery, Equipment, and

Systems, Requirements for

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-130 - Identification Marking of U.S. Military Property

MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental

and Type II - Internally Excited)

MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests

DOD-STD-1399-301 - Interface Standard for Shipboard Systems – Ship Motion and Attitude

MIL-STD-1399-302 - Interface Standard for Shipboard Systems – Weather Environment

MIL-STD-1472 - Human Engineering

MIL-STD-3038 - Test Methods for Ballistic Defeat Materials

(Copies of these documents are available online at https://assist.daps.dla.mil/quicksearch/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

NAVAL AIR SYSTEMS (NAVAIR) COMMAND

NAVAIR Air Capable Ship Aviation Facilities Bulletin No. 1J

(Copies of this document are available from Commanding Officer, Naval Air Technical Services Facility, Code 3.3.3.1 (314), 700 Robbins Avenue, Philadelphia, PA 19111-5097.)

NAVAL SEA SYSTEMS COMMAND (NAVSEA) DRAWINGS

7520804 - MK93 MOD2 and MOD4 Interface Control Drawing

(Copies of this document are available from Commanding Officer, Naval Surface Warfare Center Crane, Code 802, 300 Highway 361, Crane, IN 47522-5001 or by telephone at 812-854-4870.)

NAVAL SEA SYSTEMS COMMAND (NAVSEA) PUBLICATIONS

0908-LP-000-3010 - Shock Design Criteria for Surface Ships

S6360-AG-MAN-010 - Surface Ship Concealment; Camouflage Manual

S9086-VD-STM-030/631 - NSTM Chapter 631, Volume 3, Preservation of Ships in Service –

Surface Ship/Submarine Applications

(Copies of these documents are available from the Naval Logistics Library, 5450 Carlisle Pike, Mechanicsburg, PA 17055 or online at https://nll1.ahf.nmci.navy.mil.)

SEA 05P12 ltr 9405 Ser 05P11/C346 of 29 Sep 09 Radar Cross-Section (RCS) Requirements and RCS Reduction Design Guidelines

(Copies of this document are available from Ms. Katherine Neal, SEA 0P512, Washington Navy Yard, 1339 Patterson Ave, SE Building 176, Washington, DC 20376, 202-781-7354, or katherine.neal@navy.mil.)

2.3 <u>Non-Government publications</u>. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract

ASTM INTERNATIONAL

ASTM F1166

Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

(Copies of this document are available from ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428-2959 or online at www.astm.org.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

- 3.1 <u>First article</u>. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3.
- 3.2 <u>Materials</u>. Unless otherwise specified (see 6.2), the contractor shall select the materials, but the materials shall be capable of meeting all of the operational and environmental requirements when tested in accordance with the methods specified in this document.
- 3.3 <u>Construction</u>. The contractor shall select the methodology of construction, provided these methods are capable of meeting all of the operational and environmental requirements when tested in accordance with the methods specified in this document.
 - 3.4 Design requirements.
 - 3.4.1 Ballistic properties.
- 3.4.1.1 <u>Ballistic capability</u>. Unless otherwise specified (see 6.2), the ballistic capability of the shield shall be Type X, Class A, and Grade M in accordance with MIL-STD-3038.
- 3.4.1.2 <u>Ballistic protection as a system</u>. The shield shall provide ballistic protection to the stated level at all points along the outboard surface of the complete shield system. Any joints, seams, corners, mounting hardware, or other incongruence in the design of the shield shall provide the same ballistic protection level as the main portions of the shield and shall be tested in accordance with MIL-STD-3038.
 - 3.4.2 Protection dimensions.
- 3.4.2.1 <u>Protection height</u>. The shield shall provide full ballistic protection from the deck to a height of no less than 48 inches measured vertical from the plane of the bottom of the user's foot except as allowed by the requirements of 3.4.2.3 to provide clearance for traversing and depressing the weapons barrel.
- 3.4.2.2 <u>Protection width</u>. Full ballistic protection shall extend continuously from lateral protection zone to opposite lateral protection zone and shall satisfy the frontal protection zone requirements.

- 3.4.2.2.1 <u>Lateral protection zone</u>. Measured in a plane perpendicular to the centerline of the weapon at maximum traverse position, the shield shall provide full ballistic protection no less than 2 inches to the rear of the Gunnersmate working circle to the rear of the weapon along the centerline at zero degrees rotation. Gunnersmate working circle is defined in NAVSEA Drawing 7520804 or other weapons interface control drawing as specified (see 6.2).
- 3.4.2.2.2 <u>Frontal protection zone</u>. Measured in a plane perpendicular to the centerline of the weapon at zero degrees rotation, the shield shall provide full ballistic protection no less than 2 inches to the rear of the Gunnersmate working circle to the rear of the weapon along the centerline at maximum traverse position. Gunnersmate working circle is defined in NAVSEA Drawing 7520804 or other weapons interface control drawing as specified (see 6.2).
- 3.4.2.3 <u>Weapons interface</u>. The shield shall allow the weapon to traverse through its full range of motion as defined by installation location (see 6.2), and in accordance with NAVSEA Drawing 7520804. The shield shall not interfere with normal weapons operations (e.g., loading, firing, ejection, clearing). Cut-outs which do not conform to the requirements of 3.4.2.1 are acceptable to provide clearance for traversing and depressing the weapons barrel.

3.4.3 Ship interface.

- 3.4.3.1 <u>Foundations</u>. Existing ballistic shield deck pad foundations shall be utilized to the extent practical. Consideration shall be given to the utilization of existing structural support members beneath the deck plate. Supplemental stiffening structure, pads, and/or other foundation members shall be provided as necessary to meet the shield mass and design load factors as specified in 3.5.1.
- 3.4.3.2 <u>Preservation</u>. The shield and supporting components shall be preserved and coated in accordance with NAVSEA S9086-VD-STM-030/631 and NAVSEA S6360-AG-MAN-010. Final exterior color shall be haze gray in accordance with FED-STD-595, color number 26270.
- 3.4.3.3 <u>Ship operations interference</u>. The shield shall be designed to prevent interference with ship operations, including but not limited to, underway replenishment, intra-ship material handling, and weapon system operations as specified by the contracting agency (see 6.2).
- 3.4.3.4 <u>Flight zone</u>. Permanently mounted components of a shield in a flight zone shall meet the requirements of NAVAIR Air Capable Ship Aviation Facilities Bulletin No. 1J.
- 3.4.3.5 Removable component stowage. Sufficient stowage space and securing mechanisms shall be allocated and provided for all removable shield components under Type II or Type III integration. Shield component stowage locations shall account for the size and weight of the components to be handled and stowed. The distance and obstacles between crew-served weapon station and stowage location shall be minimized. Shield components stowage operations shall meet the requirements of MIL-STD-1472 and ASTM F1166.
- 3.4.3.6 <u>Radar cross-section</u>. Radar Cross-Section (RCS) Requirements and RCS Reduction Design Guidelines for the ballistic shields are defined by enclosures (1) and (2) respectively to SEA 05P12 ltr 9405 Ser 05P11/C346 of 29 Sep 09.

3.4.4 <u>Human systems requirements</u>.

- 3.4.4.1 <u>Material handling</u>. All removable portions of shields shall have material handling provisions, such as handles, in accordance with MIL-STD-1472 and ASTM F1166. Where wheeled hand truck or dolly movement is intended, components to be handled shall meet two-person lift requirements, and truck or dolly and portable ramps for negotiating door sills as necessary shall be provided. Sufficient stowage space and securing mechanisms shall be allocated and provided for hand truck or dolly and portable ramps.
- 3.4.4.1.1 <u>Portability</u>. All removable portions of Type II and Type III shields shall be capable of passage throughout defined handling routes to stowage location and meet the requirements of MIL-STD-1472 and ASTM F1166.

- 3.4.4.1.2 <u>Lift and carry</u>. All movable components of shields shall not exceed two-person lift and carry weight and frequency limits in accordance with MIL-STD-1472 and ASTM F1166 if manually carried to and from stowage. Any component that exceeds the weight and frequency limits for a one-person lift shall be labeled with the weight of that component.
- 3.4.4.2 <u>Trip hazard prevention</u>. All permanent portions of shields shall be designed to reduce trip hazards. Design considerations include but are not limited to beveled edges, grip paint, etc.

3.5 Environmental loads.

- 3.5.1 <u>Design load factors</u>. The shield in its operating configuration, its associated supporting deck foundations, and other ship structure and outfitting attachment points for integration Types I, II, and III shall be designed to withstand loads transmitted by environmental conditions. Loads shall be transmitted into the ship's structure and no deformation, dislodgement, or other physical damage shall be sustained by the shield, support foundation, or ship structure.
- 3.5.1.1 <u>Ship motion</u>. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall be designed to withstand maximum dynamic forces produced by motion of the ship in a seaway as defined by the more stringent of either the applicable ship specification or DOD-STD-1399-301.
- 3.5.1.2 <u>Wind</u>. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall be designed to withstand wind loading in accordance with MIL-STD-1399-302.
- 3.5.1.3 <u>Snow and ice</u>. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall be designed for snow and ice in accordance with MIL-STD-1399-302.
- 3.5.1.4 Wave slap. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall be designed to withstand a load transmitted as a result up to and including a wave slap of 500 pounds per square foot $(1b/\hat{R}^2)$ acting on the entire shield assembly in its operating configuration.
- 3.5.1.5 <u>Shock</u>. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall meet the requirements for Grade B, Class I, Type A deck mounted items in accordance with MIL-S-901.
- 3.5.1.6 <u>Vibration</u>. The shield structure, supporting deck foundation, and other ship structure and outfitting attachment points shall withstand expected dynamic vibrational stresses encountered in the service environment as defined by MIL-STD-167-1, Type 1.
- 3.5.2 <u>Environmental factors</u>. Materials and preservation methods shall be chosen to prevent overall effects of the following factors:
- 3.5.2.1 <u>Precipitation</u>. All shield panels, components, and mounting materials shall not collect water or yield to wind-driven precipitation in accordance with MIL-STD-1399-302.
- 3.5.2.2 <u>Humidity</u>. All shield panels, components, and mounting materials shall be designed for humidity in accordance with MIL-STD-1399-302.
- 3.5.2.3 <u>Temperature</u>. All shield panels, components, and mounting materials shall be designed for the operating temperature range as outlined in MIL-STD-1399-302. Further, the shield panels, components, and mounting materials shall withstand heating effects of solar radiation as outlined in MIL-STD-810 (Method 505.5).
- 3.5.2.4 <u>Sea spray</u>. All shield panels, components, and mounting materials shall not deteriorate from the effects of salt spray in accordance with the salt fog method of MIL-STD-810 (Method 509.5).
- 3.5.2.5 <u>Immersion</u>. All shield panels, components, and mounting materials shall comply with immersion testing as outlined in the immersion method of MIL-STD-810 (Method 512.5). Further, design shall not allow for the collection of water that will promote corrosion.

3.6 Marking.

- 3.6.1 <u>Strike face</u>. Each ballistic component shall be marked with the words "STRIKE FACE" in dark gray in accordance with FED-STD-595, color number 26173, to identify the correct outboard placement of the protection. Marking shall be a minimum of 1 inch tall, Arial font, all capital, and centered on the panel.
- 3.6.2 <u>Unit weight</u>. Shield components which exceed one-person lift and carry weight limits as identified in MIL-STD-1472 and ASTM F1166 shall be marked as "TWO-PERSON LIFT" and the actual weight in pounds in dark gray in accordance with FED-STD-595, color number 26173, to identify the requirement. Marking shall be a minimum of 1 inch tall, Arial font, all capital, and centered on the inboard side of the panel.
- 3.6.3 <u>Unique identification</u>. Shield components shall be marked in accordance with MIL-STD-130. Information content shall include nomenclature, Part or Identifying Number, Manufacturer Enterprise Identifier, NSN, lot number, date of manufacture, and Ballistic Protection Level in accordance with MIL-STD-3038.

4. VERIFICATION

- 4.1 <u>Classification of inspections</u>. The inspection requirements specified herein are classified as follows:
- a. First article inspection (see 4.3.1).
- b. Conformance inspection (see 4.3.2).
- 4.2 <u>Inspection conditions</u>. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in MIL-STD-3038.
 - 4.3 Types of inspection.
- 4.3.1 <u>First article inspection</u>. First article inspection shall be performed on three samples when a first article sample is required (see 3.1). One sample shall be subjected to verification as defined in 4.6 and 4.8. One sample shall be subjected to environmental factors as defined in 4.7.1 through 4.7.4 and 4.7.7 through 4.7.11, followed by ballistic properties verification as defined in 4.6.1. One sample shall be subjected to shock and vibration verification as defined in 4.7.5 and 4.7.6, followed by ballistic properties verification as defined in 4.6.1.
- 4.3.2 <u>Conformance inspection</u>. Conformance inspection shall be performed on a recurring basis (see 6.2). One sample shall be subjected to verification as defined in <u>table I</u>.

TABLE I. First article and conformance inspections.

Title	Requirements	Verification	First Article	Conformance
Materials	3.2	4.4	X	X
Construction	3.3	4.5	X	X
Ballistic Properties	3.4.1	4.6.1	X	X
Protection Dimensions	3.4.2	4.6.2	X	
Foundation	3.4.3.1	4.6.3	X	
Preservation	3.4.3.2	4.6.4	X	X
Ship Operations Interference	3.4.3.3	4.6.5	X	
Flight Zone	3.4.3.4	4.6.6	X	
Removable Component Stowage	3.4.3.5	4.6.7	X	
Radar Cross-Section	3.4.3.6	4.6.8	X	
Material Handling	3.4.4.1	4.6.9	X	
Portability	3.4.4.1.1	4.6.9.1	X	
Lift and Carry	3.4.4.1.2	4.6.9.2	X	
Trip Hazard	3.4.4.2	4.6.10	X	
Ship Motion	3.5.1.1	4.7.1	X	
Wind	3.5.1.2	4.7.2	X	
Snow and Ice	3.5.1.3	4.7.3	X	
Wave Slap	3.5.1.4	4.7.4	X	
Shock	3.5.1.5	4.7.5	X	
Vibration	3.5.1.6	4.7.6	X	
Precipitation	3.5.2.1	4.7.7	X	
Humidity	3.5.2.2	4.7.8	X	
Temperature	3.5.2.3	4.7.9	X	
Sea Spray	3.5.2.4	4.7.10	X	
Immersion	3.5.2.5	4.7.11	X	
Marking	3.6	4.8	X	X

- 4.3.3 <u>Lot</u>. An inspection lot shall consist of all ballistic shields of one type and part number from an identifiable production period, from one manufacturer, submitted at one time for acceptance (see 6.2).
- 4.3.4 <u>Acceptance and rejection</u>. Selected test article shall meet the requirements specified in <u>table I</u>. Failure of any test article to meet the requirements in <u>table I</u> shall constitute rejection of the entire lot which it represents. Unless otherwise specified (see 6.2), verification results shall be accepted prior to shipment of the lot represented by the test article.
- 4.4 <u>Materials traceability</u>. Ballistic materials utilized in the manufacture of the shield shall be verified by conformance inspection and shall meet the requirements specified in 3.2. Documentation shall be provided as specified (see 6.2).
- 4.5 <u>Construction inspection</u>. Visual inspection shall be utilized to verify the method of construction. At the Government's discretion, test article shall be de-constructed in order to verify that the construction method meets the requirements specified in 3.3.

- 4.6 Design verification.
- 4.6.1 <u>Ballistic properties</u>. The shield shall be tested in accordance with MIL-STD-3038 and shall meet the requirements specified in 3.4.1.
- 4.6.2 <u>Protection dimensions</u>. As specified (see 6.2), measurements shall be taken to verify that the requirements in 3.4.2 are met. Measurements for 3.4.2.2.1 shall conform to the example of <u>figure 1</u>. Measurements for 3.4.2.2.2 shall conform to the example of <u>figure 2</u>.

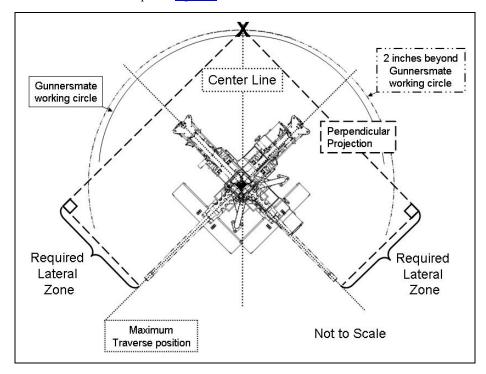


FIGURE 1. Lateral protection zone measurement method.

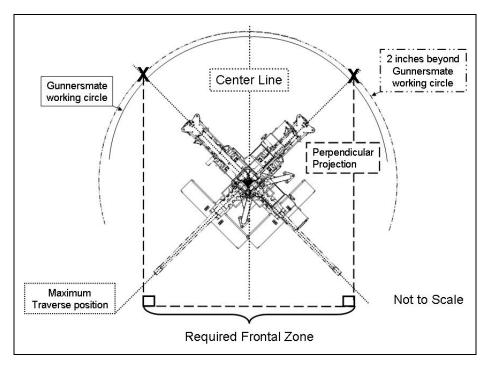


FIGURE 2. Frontal protection zone measurement method.

- 4.6.3 <u>Foundations</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.3.1 are met.
- 4.6.4 <u>Preservation</u>. Coating quality shall be verified in accordance with NAVSEA S9086-VD-STM-030/631 and meet the requirements specified in 3.4.3.2.
- 4.6.5 <u>Ship operations interference</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.3.3 are met.
- 4.6.6 <u>Flight zone</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.3.4 are met.
- 4.6.7 <u>Removable component stowage</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.3.5 are met.
- 4.6.8 <u>Radar cross-section</u>. The shield shall be tested in accordance with SEA 05P12 ltr 9405 Ser 05P11/C346 of 29 Sep 09 and meet the requirements specified in 3.4.3.6.
- 4.6.9 <u>Material handling</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.4.1 are met.
- 4.6.9.1 <u>Portability</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.4.1.1 are met.
- 4.6.9.2 <u>Lift and carry</u>. All movable components of shields shall be visually inspected for markings and weighed to the nearest 0.1 pound to verify that they meet the requirements in 3.4.4.1.2.
- 4.6.10 <u>Trip hazard prevention</u>. As specified (see 6.2), measurements and calculations shall be performed to verify that the requirements in 3.4.4.2 are met.

4.7 Environmental verification.

- 4.7.1 <u>Ship motion</u>. Finite Element Analysis (FEA), computer modeling and simulations, or calculations shall be conducted to verify that the requirements in 3.5.1 and 3.5.1.1 are met. Results shall be provided as specified (see 6.2).
- 4.7.2 <u>Wind</u>. Finite Element Analysis (FEA), computer modeling and simulations, or calculations shall be conducted to verify that the requirements in 3.5.1 and 3.5.1.2 are met. Results shall be provided as specified (see 6.2).
- 4.7.3 <u>Snow and ice</u>. Finite Element Analysis (FEA), computer modeling and simulations, or calculations shall be conducted to verify that the requirements in 3.5.1 and 3.5.1.3 are met. Results shall be provided as specified (see 6.2).
- 4.7.4 <u>Wave slap</u>. Finite Element Analysis (FEA), computer modeling and simulations, or calculations shall be conducted to verify that the requirements in 3.5.1 and 3.5.1.4 are met. Results shall be provided as specified (see 6.2).
- 4.7.5 <u>Shock</u>. The shield structure shall be tested in accordance with MIL-S-901 and shall meet the requirements specified in 3.5.1.5. Supporting deck foundation and other ship structure and attachment points shall be tested in accordance with NAVSEA 0908-LP-000-3010 and meet the requirements specified in 3.5.1.5.
- 4.7.6 <u>Vibration</u>. The shield structure shall be tested in accordance with MIL-STD-167-1 and shall meet the requirements specified in 3.5.1.6.
- 4.7.7 <u>Precipitation</u>. All shield panels, components, and mounting materials shall be tested in accordance with the rain method of MIL-STD-810 (Method 506.5) and shall meet the requirements specified in 3.5.2.1.
- 4.7.8 <u>Humidity</u>. All shield panels, components, and mounting materials shall be tested in accordance with the humidity method of MIL-STD-810 (Method 507.5) and shall meet the requirements specified in 3.5.2.2.
- 4.7.9 <u>Temperature</u>. All shield panels, components, and mounting materials shall be tested in accordance with the high and low temperature methods of MIL-STD-810 (Methods 501.5 and 502.5) and shall meet the requirements specified in 3.5.2.3. Further, all shield panels, components, and mounting materials shall be tested in accordance with the cyclic heating effects outlined in Procedure 1 of MIL-STD-810 (Method 505.5).
- 4.7.10 <u>Sea spray</u>. All shield panels, components, and mounting materials shall be tested in accordance with the salt fog method of MIL-STD-810 (Method 509.5) and shall meet the requirements specified in 3.5.2.4.
- 4.7.11 <u>Immersion</u>. All shield panels, components, and mounting materials shall be tested in accordance with the immersion method of MIL-STD-810 (Method 512.5) and shall meet the requirements specified in 3.5.2.5.
- 4.8 <u>Marking</u>. Visual inspection shall be utilized to verify that the requirements listed in 3.6.1 through 3.6.3 are met.

5. PACKAGING

5.1 <u>Packaging</u>. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

- 6.1 <u>Intended use</u>. The ballistic shields covered by this specification are used in conjunction with crew-served weapons stations aboard naval vessels where resistance to the environment is required at all times, independent of shield type and configuration. The intent is to enhance the survivability of the personnel manning crew-served weapons stations. Consideration should be given to designs that do not discourage use due to complexity, impracticality, or lack of durability.
 - 6.2 Acquisition requirements. Acquisition documents should specify the following:
 - a. Title, number, and date of this specification.
 - b. Type of shield when desired (see 1.2).
 - c. When first article is required (see 3.1).
 - d. Whether the material is to be specified (see 3.2).
 - e. Threat level if different (see 3.4.1.1).
- f. Whether an alternate weapon system or mount is to be considered (e.g., MK 38 Mod 1, MK 38 Mod 2, MK 95, MK 97, or MK 99) (see 3.4.2.2.1, 3.4.2.2.2, and 3.4.2.3).
 - g. Ship Class and mount location (see 3.4.2.3).
 - h. Whether the installation location has special considerations (see 3.4.3.3).
 - i. When to conduct a conformance inspection (see 4.3.2).
 - j. Production period that constitutes a lot (see 4.3.3).
 - k. When lot may be shipped before verification (see 4.3.4).
 - 1. Type of conformance inspection documentation (see 4.4).
- m. Format of drawings, measurements, and calculations (see 4.6.2, 4.6.3, 4.6.5, 4.6.5, 4.6.7, 4.6.9, 4.6.9.1, and 4.6.10).
 - n. Methodology of verification (see 4.7.1 through 4.7.4).
 - n. Format of results (see 4.7.1 through 4.7.4).
 - o. Packaging requirements (see 5.1).
 - 6.3 Subject term (key word) listing.

Force protection

Machine gun shield

Ship force protection

Small-arms protection

Survivability

Custodians: Navy – SH Air Force – 99 Preparing Activity: Navy – SH (Project 2040-2009-001)

Review Activity:

DLA - CC

Civil Agency: GSA – FAS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.daps.dla.mil.